DOCUMENT RESUME

ED 342 469 PS 020 306

AUTHOR Bugental, Daphne Blunt
TITLE Autonomic Reactivity to Social Challenge as a Function of Differences in Interpersonal Schemas.
PUB DATE Oct 91
NOTE 23p.; Paper presented at the Social Psychophysiology Premeetings of the Society for Experimental Social Psychology (Columbus, OH, October 1991).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Adults; Child Caregivers; Children; *Defense Mechanisms; *Emotional Response; *Interpersonal Relationship; Mothers; *Parent Child Relationship; *Power Structure; Simulation; Social Adjustment; Social Psychology; Violence
IDENTIFIERS *Adult Child Relationship; *Threat

ABSTRACT

Individual differences in the regulatory processes involved in managing difficult interpersonal interactions were investigated. Interpersonal systems that easily escalate to produce coercive or violent encounters in adult-child relationships were of particular interest. Adults who were predisposed to view adult-child interactions as containing threat were studied. The study, in which 160 mothers participated, involved a computer maze game and computer-simulated child behavior. Autonomic, cognitive, and behavioral measures were compared. Findings suggest that threat-oriented adults have an exaggerated response to potentially challenging encounters with children and may easily generate the hypothesis that interactions with children may be difficult. Because they assume a defensive response, threat-oriented adults are less able to shape their responses in a flexible fashion to the actual characteristics of a particular child. Contains 11 references. (LB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED342469

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
X This document has been reproduced as received from the person or organization originating it
[ ] Minor changes have been made to improve reproduction quality
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

Autonomic Reactivity to Social Challenge as a Function of Differences in Interpersonal Schemas

Daphne Blunt Bugental
University of California
Santa Barbara

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Daphne Bugental
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Paper presented at the Social Psychophysiology Premeetings of the Society for Experimental Social Psychology. Columbus, Ohio, October, 1991.

PS 020306

BEST COPY AVAILABLE

Autonomic Reactivity to Social Challenge
as a Function of Differences in Interpersonal Schemas

Daphne Blunt Bugental
University of California, Santa Barbara

The research I will be describing today is concerned with individual differences in the regulatory processes involved in managing difficult interpersonal interactions. Specifically, we have chosen as our domain of interest those interpersonal systems that easily escalate to coercive or violent encounters. From the standpoint of social psychophysiology, our interests were twofold. First, we were concerned with the role of interpersonal schemas as moderators of the relationship between social stimulus factors and physiological change. And second, we were concerned with the role of physiological change as one part of a generalized pattern of mobilization for defense against perceived social threat.

In tracking the course of social interactions, we have asked a series of unfolding questions? What characterisitcs of relationship schemas act to foster differential sensitivity to and biased interpretation of the social environment? And second, how does the activation of such cognitive constructions play out in terms of subsequent response systems -- including affective/autonomic, cognitive/motivational, and behavioral/strategic components. Finally, I will argue that the functionality or dysfunctionality of response systems must be interpreted in terms of the match or mismatch with veridical contextual demands.

In our concern with interpersonal system, we directed our

attention to adult-child relationships. We were interested in the pairing of adults who are predisposed to construe such interactions as containing threat, with children whose behavior suggests potential challenge to the power of the adult. Such adults (who we will refer to as threat-oriented) were predicted to show exaggerated reactivity to threat-relevant information in their interactions with children.

Caregiver attributions as relationship schemas. First, a few words about our cognitive moderating variable. Concern with social schemas or social attributions has characteristically focused either on the cognitive representation of self or others. Only recently have we seen a shift toward a more relational conception of such cognitive constructions. For example, Markus and Kitayama have recently suggested the importance of considering the "relational" self (1991). But little attention has been directed to the idiosyncratic schemas we may hold about specific significant others in our lives. Reversing this trend, Anderson and Cole (1990) have demonstrated that significant others are indeed represented cognitively as well-organized person categories that influence social perceptions, i.e, they have consequences for the ways in which we view others.

Our particular concern here, then, is not just with self schemas or schemas about others but with interpersonal or relationship schemas. Recent interest has been directed in the developmental literature to the origins of such schemas (using a different terminology). Bowlby has proposed the notion of a "working model" of interpersonal relationships. He has suggested that the child develops a model of interpersonal relationships

based upon experiences with early attachment figures (1980). This model includes a role for both self and others. Such models serve a heuristic function by providing guidelines for behavior in other interpersonal relationships. Once accessed, the content of a schema may be thought of as providing a hypothesis about subsequent interaction. Such a hypothesis may then act to differentially sensitize the individual to schema-relevant information in the environment -- a notion that is conceptually equivalent to Bruner's concept of "perceptual readiness" (1957).

In our program of research, we are particularly interested in those aults who characterize their relationship with children as one in which they are at a power disadvantage -- a perception that is sharply at variance with actual power distributions between adults and younger children. This perceived power reversal has been found to be particularly common among highly punitive parents; e.g., abusive parents often see themselves as victims of the intentional or controllable actions of children (Bugental, Blue, & Cruzcosa, 1989; Larrance & Twentyman, 1983). And due to this view of the caregiving relationship, they are always "ready" to see threat, and to defend against threat. Ambiguous social cues are easily construed as reflecting negative intent. Not only may such individuals easily experience feelings and thoughts of helplessness; they may also manifest chracteristic ways of accomodating to perceived threat. That is, a currently activated schema may also be thought of as having motivational properties. Thus the threat-oriented individual -- when challenged -- may respond by mobilizing a "defensive" system. This pattern of response may be consistent with defense

against veridical threat, but it is inconsistent with flexible response to interactional processes that are better characterized by challenge than threat.

Hypotheses. In our program of research, we have gone back and forth between field situations in which we have observed interactions in families under stress and laboratory analog settings that allow us to test causal inferences regarding assumed interactive processes. For example, in our field research we have found that abusive family sytems include adults who are characterized by threat-oriented attributions; additionally, children that were particularly likely to be targeted for abuse were found to show elevated levels of apparent unresponsiveness to adults (Bugental, Blue, & Cruzcosa, 1989; Bugental, Blue & Lewis, 1990). We have now recreated this pairing in a laboratory analog setting. We used a simulated interaction paradigm in which adults engaged in an interaction that nominally involved teaching a child a video game. In actuality, the child "behavior" seen reflected computer-generated displays of child performance (systematically varied to create the impression of a responsive or unresponsive children). It was anticipated that the highest levels of reactivity to child behavior would be shown by threat-oriented adults. If the environment contained information that supported a threat hypothesis (the presence of a relatively difficult or unresponsive child), they would react with high levels of defensive or "active" arousal (Lacey, Kagan, Lacey, & Moss, 1963; Obrist, 1982), threat-oriented ideation, and threat-oriented control tactics. Conversely, non threat-oriented adults were

expected to show little distinction in their reactions to responsive and unresponsive children; they were, instead, expected to show a general pattern of interest, attention, and information-intake.

Method

160 mothers participated in the study (advance measures taken on attributions and affect). The key events included:

(a) an 8 min initial baseline period.

(b) watching a 2-min ambiguous tape of the child with whom they believed they would interact. This tape was said to have been made during an earlier visit by the child to the lab.

(c) verbal instructions to child.

(d) playing game together with child. During this time period, the child enactment was displayed on subjects' computer screens, and their task was to model the desired behavior.

(e)-(h) repeat of (a)-(d)

(f) post-measures (electrodes were removed and subjects were asked to make post-ratings of child, and post-ratings of their current affective state.

(g) thought listing. At the end of procedures, videotapes (of both adult and child behavior) were replayed; tapes were stopped at preset points, and subjects were asked to list what their thoughts had been at those times. Responses given to the thought listing procedure were coded for affective valence.

Computer game and simulated child behavior. The experimental task required the subject to go through a computer-displayed maze together with the "child." The subject's movements through the maze was controlled by use of a mouse. The goal of the subject

was to help the child move through the maze in an error-free fashion. Subjects had access to positive feedback (happy faces) and negative feedback (mad faces) during their interactions with children.

Child enactments were of two different types--responsive and unresponsive. In the responsive condition, the child's behavior appeared to start out poorly and gradually improved across their movement through the maze. In the unresponsive condition, the child's behavior appeared to start out poorly, then showed initial improvement, followed by subsequent decrements in performance. This pattern suggested that the child had the capability to perform the task, but became careless and indifferent to the adult's instructions. The only difference in the two performances was in the sequential pattern of errors, not in the number of errors.

Half of the subjects in each condition had access to feedback during the game (ad lib) and half only had access to feedback after the game (post hoc). This comparison was introduced to rule out the possibility that differential autonomic responses shown to child conditions were simply due to differential movement levels associated with use of mouse buttons in giving feedback.

Measures

Parent Attribution Test. The Parent Attribution Test (Bugental, et al., 1989) is a questionnaire that measures the perceived causes of care-giving success and failure. Subjects were grouped into threat-oriented attributors (i.e., those individuals who attributed low control to adults and high control

to children) versus other attributional groupings.

Self-reported Affect. Subjects were given PANAS (Watson, Clark, & Tellegen, 1988) in advance of procedures and immediately following procedures.

Autonomic Measures. Skin conductance, respiration, and heart rate responses were measured continuously throughout the experiment. Heart rate and respiration were measured by EdenTec's 2000W Heart Respiration Monitor. Skin conductance was measured by Coulbourn's GSR amplifier. All data were collected and stored on-line by an Intel 386/16 microcomputer system. The analog data (respiratory, skin conductance level) was saved every 55 ms. The time from the beginning of the experiment was saved for each heart and respiratory detect signal (accurate to 5 ms).

Interbeat intervals (IBIs) between R-waves were used as the basis for computing beats per minute (bpm) for average HR for longer time periods, as well as increases/decreases in HR for fixed periods. Skin conductance was measured for the frequency of occurence of nonspecific SCRs. All data were corrected for movement artifacts. Skin conductance data were corrected for respiration artifacts.

Strategic efforts. Strategic efforts reported here include the use of happy and mad faces as feedback during games.

Post appraisal of child. At the end of all procedures, subjects were asked to rate the child with whom they had interacted. These scales assessed the extent to which the child's "behavior" was seen as resistive versus cooperative.

Results

Autonomic, cognitive, and behavioral measures were compared

for different subject groupings before and following experimental inductions. The first maze game (in which the "child's" behavior was depicted) was defined as the experimental induction period, and subjects' responses during Game 2 were interpreted as their response to that earlier induction.

A. Preinduction Differences between Subject Groupings

1. Autonomic responses. No significant baseline differences in electrodermal activity or heart rate level as a function of attributional groupings of subjects.

2. Anticipatory cognitions. Valence of thoughts during this baseline period (preinduction viewing of ambiguous videotapes) was compared as a function of adult attributions and child age. No significant differences were found for positive thoughts or ambivalent thoughts. For negative thoughts, however, attributional effects were significant. Threat-oriented adults showed a higher level of negative ideation (34% of their thoughts were negative) than did other subjects (18% of their thoughts were negative).

Examples of the kind of thoughts reported by threat-oriented adults included the following:

"I was feeling slightly intimidated at thought of trying to communicate with Sean."

"He can't sit still for a moment."

"I was wondering if he would have enough patience to concentrate on a maze."

"He seems developmentally slow."

3. Preinduction affect. No differences were found between attributional groupings in pre-measures taken on the

PANAS.

B. Altered Responses during Interaction

During the second game, threat-oriented subjects who had interacted with an unresponsive child in Game 1 were expected to show (a) greater increases in HRL and frequency of nonspecific SCRs, (b) increasingly negative ideation, and (c) increasingly negative control strategies.

1. Autonomic Responses For skin conductance measures, a significant interaction was found between child responsiveness, adult attributions, and time, $F(1, 137) = 4.67$, $p = .032$). As shown in Figure 1, SCRs increased in frequency over time only

---

Include Figure 1 about here

---

among threat-oriented subjects interacting with unresponsive children. The observed interaction between child responsiveness, adult attributions, and time was not qualified by timing of access to feedback (and the accompanying differences in physical activity associated with button pushes).

For heart rate measures, the predicted interaction between child responsiveness, adult attributions, and time approached significance, $F(1, 141) = 3.66$, $p = .058$. It can be seen (Figure 2) that only threat-oriented adults, paired with

---

Insert Figure 2 about here

---

unresponsive children, showed HR increases across the course of the game. All other subject groupings showed initial HR declines;

subjects who did not make threat-oriented attributions -- regardless of the characteristics of the stimulus child -- show initial HR declines, followed by a recovery period during the second half of the game.

In other words, threat-oriented subjects--when paired with unresponsive children--showed a response pattern that is consistent with mobilization for physical activity (or possibly with cognitive exertion). That is, across the course of the game interaction they showed increases in both HRL and electrodermal activity. All other subjects showed a response pattern that is more consistent with information-intake. Additionally, we followed up shifts in HR during post-baseline, and observed that increasing levels of HR shown by threat-oriented subjects interacting with unreponsive children, continued to escalate throughout the first 2 minutes of the post baseline period, and then showed a slight recovery.

2. Cognitions. So what about shifts in their ideation during the second game? Ideation did indeed become more negative among threat-oriented attributors paired with unresponsive children. But unexpectedly, negative ideation was not related to the observed autonomic changes. That is, we did not find correlations within time periods or across time periods between autonomic levels or changes and valence of ideation. And more specifically, we did not find any coupling of negative thoughts with momentary changes in SCL. Thoughts reported during the various time periods were assessed at different points in time: (a) immediately following the start of a significant increase in SCL, and (b) following a randomly selected time (pseudo-trial).

It was anticipated that thoughts associated with elevations in electrodermal activity would be more affective in nature. No support was obtained for this prediction.

3. Strategic behaviors (game feedback). Full analysis of the use of feedback during games was limited to the ad lib condition; during the post hoc condition, few subjects used "mad faces" and there was little variance in the use of "happy faces". For the ad lib condition, the duration of time that the two buttons were held down was used as the measure of positive feedback and negative feedback. For positive feedback, a significant interaction was obtained for the interaction between child responsiveness, adult attributions, and time (see Table 1),

---

Insert Table 1 about here

$F(1, 76) = 5.14$, $p = .026$. Threat-oriented adults manifested low and decreasing use of positive feedback with unresponsive children. Conversely, the highest use of positive feedback was shown by threat-oriented subjects interacting with responsive children.

C. Post appraisals.

Following all procedures, subjects rated (a) the child's perceived responsiveness or resistiveness to them, and (b) their current mood state. Post-ratings made of the child were analyzed in an initial analysis that included three grouping variables (child responsiveness, adult attributions, and feedback condition). A significant main effect was found for child responsiveness, $F(1, 154) = 6.13$, $p = .014$. Additionally, a

significant interaction was found between child responsivenss and adult attributions, $F(1, 154) = 5.95$, $p = .016$ (see Table 2).

Insert Table 2 about here

Threat-oriented subjects manifested greater polarization in their ratings of responsive and unresponsive children than did subjects with high perceived control. Additionally, a significant main effect was found for feedback condition, $F(1, 151) = 4.40$, $p = .038$. Subjects rated children (as a whole) as more responsive when they had been in the ad lib feedback condition than when they had been in the post hoc feedback condition. No significant effects were found for age of child in a follow-up analysis.

As a final note, the only significant relationship found between dependent variables was a significant but weak relationship between increases in heart rate and increases in electrodermal activity. thus it appears unlikely that there is a causal connection between the different components of the observed defensive system.

Discussion

Our findings suggest that threat-oriented adults manifest an exaggerated level of reactivity in response to potentially challenging encounters with children. This process began with biased perceptions of initial ambiguous stimulus tapes. Threat-oriented individuals may easily generate the hypothesis that interactions with children may be difficult. Once subjects were exposed to the experimental induction (responsive vs. unresponsive children), threat-oriented adults show polarized

and escalating autonomic and strategic patterns in response to the two types of children. With unresponsive children, they show elevations in defensive arousal (increases in heart rate level and electrodermal activity), escalating use of sanctions (withdrawal of positive feedback). It is important to note that this same adult grouping, when paired with responsive children, showed decreases in heart rate and increases in use of positive feedback.

Threat-oriented schemas, when supported by environmental confirmation, act to set a broad "defensive" pattern into place. It is subjectively "necessary" for adults maintaining such a schema to muster both autonomic and strategic resources in order to deal with a "difficult" child. Our failure to observe relationships between autonomic, cognitive, and behavioral variables (within time or across time) suggests that these component may be stored and accessed together but do not act in a causally connected fashion. That is, just as schema activation may trigger associated affective components (Fiske & Pavelchak, 1986), schema activation (when confirmed) may act to set a complex regulatory system into place that include components that faciliate mobilization for defense against threat. This pattern of response can, of course, be expected to lead to a deteriorating interactive system.

Conversely, adults who lack a threat-oriented relationship schema manifest regulatory activity that is better suited to effective self and social regulation in this type of interaction. That is, they respond with HR declines, consistent with information-intake. Additionally, their strategic efforts -- the

feedback they provided to children -- included increasing levels of positive feedback; such patterns could reasonably be expected to be more effective sources of influence on child behavior.

It is important to note, however, that the dysfunctional sequelae of threat-oriented schemas are definable in terms of the degree of mismatch with the veridical characteristics of the situation. The response patterns shown by threat-oriented individuals are indeed consistent with and adpative for preparation to withdraw from or physical combat with a genuinely threatening other. They are simply inconsistent with the needs of a child who may pose a challenge but who does not directly pose an objective threat. By engaging a preemptory defensive system, such adults are less likely to accurately perceive the child on an individuated basis, and they are less able to shape their responses in a flexible fashion to the actual characteristics of the particular child.

In summary, we have have demonstrated that individual differences in relationship schemas, once activated and confirmed, trigger a pattern of response that includes multiple indications of increased sympathetic activity (as well as increased efforts to strategically influence the child). This supports the role of stable cognitive structures as moderators of the relationship between social stimulus factors and physiological changes.

References

Bowlby, J. (1980). Attachment and loss. NY: Basic Books.

Bruner, J. S. (1957). On perceptual readiness. Psychological Review, 64, 123-152.

Bugental, D. B., Blue, J., & Cruzcosa, M. (1989). Perceived control over care-giving outcomes: Implications for child abuse. Developmental Psychology, 25, 532-539.

Bugental, D. B., Blue, J., & Lewis, J. (1990). Caregiver beliefs and dysphoric affect to difficult children. Developmental Psychology.

Bugental, D. B., & Cortez, V. (1988). Physiological reactivity to responsive and unresponsive children - as modified by perceived control. Child Development. 59, 686-693.

Bugental, D. B., & Shennum, W. A., (1984). "Difficult" children as elicitors and targets of adult communication patterns: An attributional-behavioral transactional analysis. Monographs of the Society for Research in Child Development, 49, (Serial No. 205, 1).

Fiske, S. T., & Pavelchak, M. A. (1986). Category-based versus piecemeal-based affective responses: developments in schema-triggered affect (pp. 167-203), in R. M. Sorrentino and E. T. HIggins (Eds.) Motivation and cognition. NY: Guilford.

Lacey, J. H., Kagan, J., Lacey, B., & Moss, H. A. (1963). The visceral level: situational determinants and behavioural correlates ofautonomic response patterns. In P. H. Knapp (Eds.), Expression of the emotions in man (pp. 161-196). NY: International Universities Press.

Larrance, D. T., & Twentyman, C. T. (1983). Maternal attributions and child abuse. Journal of Abnormal Psychology, 92, 449-457.

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. Psychological Review, 98, 224-253.

Obrist, P. A. (1982). Cardiac-behavioral interactions: A critical appraisal. In J. T. Cacioppo & A. E. Petty (Eds.) Perspectives in cardiovascular psychophysiology. N.Y.: Guilford Press.

Table 1

Duration of positive feedback

	Responsive child		Unrsesponsive child	
	High PC	Low PC	High PC	Low PC
First half	2.68	3.78	3.39	2.40
	(2.63)	(5.15)	(4.40)	(2.11)
Second half	4.19	6.62	4.69	1.57
	(4.49)	(8.40)	(4.81)	(1.10)
Change	1.51_{a}	2.84_{b}	1.30_{c}	$-.83_{abc}$

Note. Mean duration of feedback is shown in seconds. SDs are in parenthesis. Means followed by common subscripts are significantly different at the .05 level of confidence or better.

Table 2

Post-ratings of responsive and unresponsive children

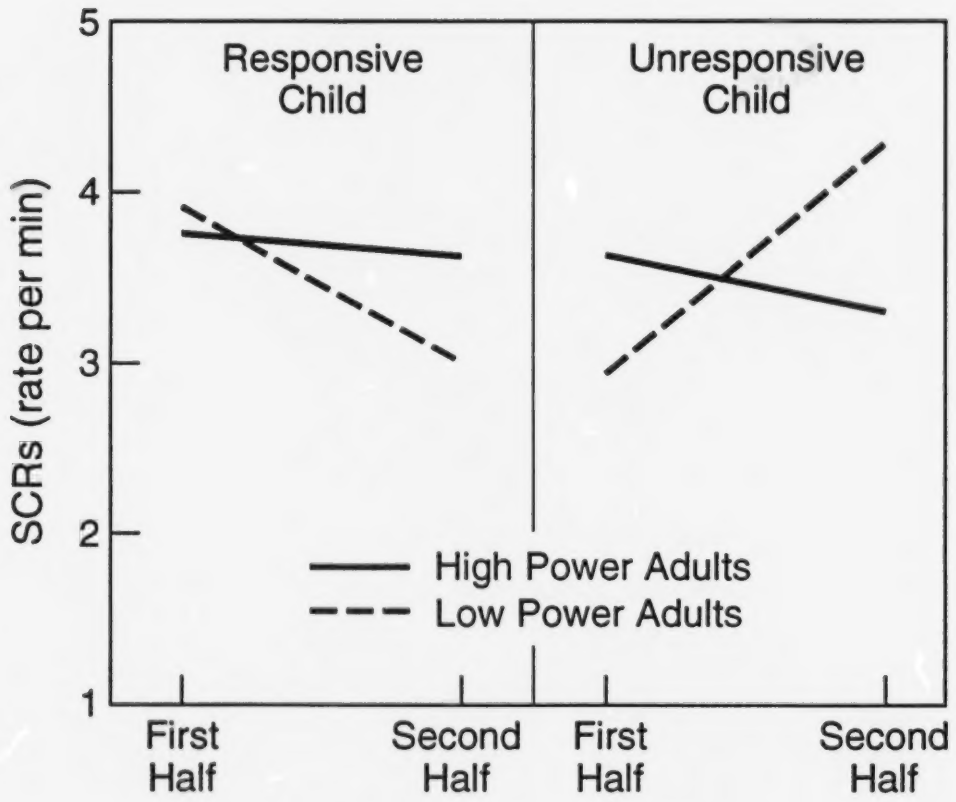
Attributions	Responsive children	Unresponsive children
High Perceived Control	2.16_{a} (1.18)	2.17_{b} (1.02)
Low Perceived Control	2.00_{c} (.63)	3.14_{abc} (1.50)

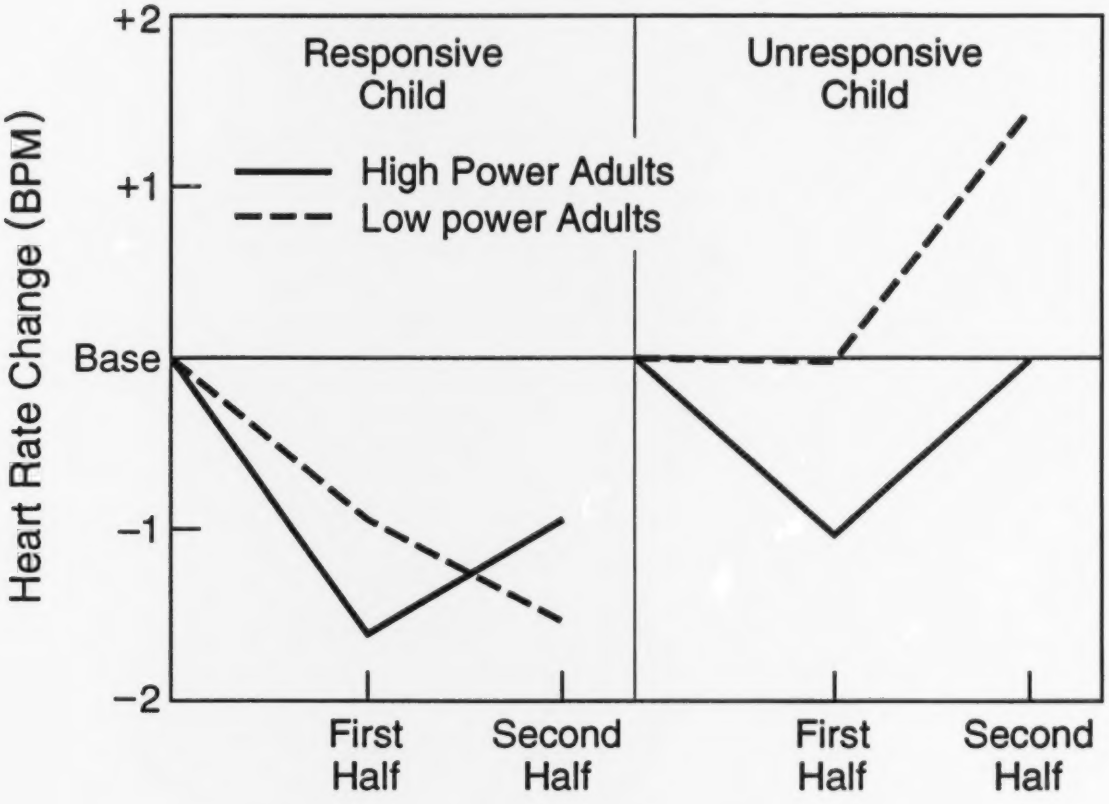
Note: Scores represent average post-ratings on a 5-point scale (where 1 represents an evaluation of the child as responsive); SD's are shown in parenthesis. Means followed by common subscripts are significantly different at the .05 level of confidence or better.

Figure Headings

Fig. 1. Changes in electrodermal activity by high power ("threat-oriented") and low power adults in interaction with responsive and unresponsive children.

Fig. 2. Changes in heart rate by high power ("threat-oriented") and low power adults in interaction with responsive and unresponsive children.


5
4
3
2
1
SCRs (rate per min)
Responsive Child
Unresponsive Child
High Power Adults
Low Power Adults
First Half
Second Half
First Half
Second Half


Responsive Child
Unresponsive Child
High Power Adults
Low power Adults
Heart Rate Change (BPM)
+2
+1
Base
−1
−2
First Half
Second Half
First Half
Second Half